FILM HOLE PUNCHING SYSTEM, METHOD AND ARTICLE OF MANUFACTURE

Abstract of the Disclosure

An optical encoder is mounted on the end of the shaft of one roller, which is in turn mounted on framework of the equipment and is driven by a film of material. A computer receives a number of impulses per roller revolution with such impulses transmitted from the optical encoder during the film's passing over the roller. Software of the computer is programed with the exact circumference of the roller before shipment and the computer calculates the amount of film that has passed over the roller and fires solenoid valves to precipitate punching operations based upon the distance traveled by the film. Upon receiving an electrical impulse from the computer control, a solenoid valve releases an intermittent burst of compressed air through a tube to a housing which contains a plastic actuator, a plunger and a spring and which has several holes drilled in it to facilitate movement of said compressed air. The burst of compressed air forces the actuator and plunger downward. After the actuator bottoms out said burst of air is exhausted, the plunger continues to travel downward until the tip of the plunger, containing a steel ball contacts a circular hole in the die which is located in the lower portion of the machine. The force of the ball striking the die cuts the material that is moving between the two components. A spring which rests between the housing and the plunger returns the plunger and actuator to their resting position. The cut out pieces of material travel downward through the hollow center of the die and its holder and are carried by the stream of air created by the suction of the vacuum system through the chambers and ducts of the machine being deposited in a receptacle, preventing the haphazard accumulation of scrap occurring with the prior art.